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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/781,638  | 02/12/2001  | Suraj C. Kothari     | 900.174US1          | 8399             |
| 21186   | 7590        | 01/13/2005           | EXAMINER            |                  |
| SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.<br>P.O. BOX 2938<br>MINNEAPOLIS, MN 55402 |             |                      | DAS, CHAMELI        |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2122                |                  |

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/781,638

Applicant(s)

KOTHARI ET AL.

Examiner

CHAMELI C DAS

Art Unit

2122

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-94 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-94 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1. This action is in response to the remarks filed on 9/10/04.
2. Claims 1-94 have been rejected.

**Response to the argument**

3. The applicant's argument filed on 9/27/04 have been fully considered but they are not persuasive. In the Remarks, the applicant has argued in substance:

**(1) *Clark (US 5,297,150) does not disclose "program slice".***

***Response:***

(1) Clark (US 5,297,150) discloses "program segment" (col 5, lines 26-35) and the "source statement" (col 6, lines 47-67), where the "program statements" and "source statements" are the "program slice". According to the applicant's specification, the "program slice" is a *sequence of program statement* that are influential on the value of one or more variable at given points.

Clark shows that those *source statement* includes variables and the series of program statements which are influential on the value of one or more variable (col 6 lines 56-67) at given points (col 4, lines 38-49), where the "basic block" (program segment) reaches an entry and exit point.

**(2) *Nowhere does Clark teach or disclose determining a sequence of statements that influence the definition of variables that can reach a point in a program.***

***Response:***

(2) The above limitation is not recited in the claim language. According to the applicant's specification, the "program slice" is a sequence of program statement that are influential on the value of one or more variable at given points. Clark discloses "source statements" that are influential on the value of one or more variable at given points. See the response of the argument (1) above.

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(3) *Clark does not teach each and every element of claims 1, 22 and 43.*

**Response:**

(3) Clark teaches each and every element of claims 1, 22 and 43. See the previous office action, filed on 3/1/04 with the response of the argument above.

(4) *As per claims 3, 24, and 45 Clark does not disclose data flow dependencies between the nodes.*

**Response:**

(4) Clark discloses data flow dependencies between the nodes (Fig 7, Fig 2 and col 4, lines 20-27, “the flow graph contains a *plurality of nodes* 1-18 with node 1 being the start node and nodes 3, and 18 being exit nodes ... *through the flow graph*”).

(5) *Clark does not disclose “pruning the program slice” diagram.*

**Response:**

Clark does not disclose “pruning the program slice” diagram. However, Van Dyke (US 5,175,856) discloses pruning the program slice (Van Dyke, col 11, lines 61-66, “. Global optimizations are performed over an entire procedure. They include: propagation of constants, elimination of unreachable code, *elimination of common subexpressions*,”), where, “elimination of the subexpression” are the “pruning the program slice” as claimed. The modification would be obvious because one of the ordinary skill in the art would be motivated to get the smallest possible instruction string to provide the optimization of the entire procedure.

(6) *Van Dyke does not teach or suggest performing semantic abstraction to group a subset of nodes.*

**Response:**

(6) Clark discloses performing the group of subset of the nodes (col 3, lines 23-30). Clark does not specifically disclose semantic abstraction. However, Van Dyke discloses nodes represents semantic elements of the high-level program (col 15 lines 60-65). The modification would be obvious because one of the ordinary skill in the art would be motivated to provide a meaningful components for efficient program analysis.

(7) Van Dyke does not teach or suggest block-level abstract syntax viewer.

Response:

(7) Clark discloses block-level viewer (col 3, lines 25-30) and display the flow diagram is shown in col 6 lines 40-45. Clark does not specifically teach abstract syntax. However, Van Dyke discloses nodes represents semantic elements of the high-level program (col 15 lines 60-65). The modification would be obvious because one of the ordinary skill in the art would be motivated to provide a meaningful components for efficient program analysis.

(8) Clark does not disclose analyze the data elements.

Response:

(8) Clark discloses analyzing the data elements (col 5, lines 26-29).

(9) Clark does not disclose "identifying a logical category of data elements; and displaying the logical category of data elements with a cross-reference to display of data".

Response:

(9) Clark discloses identifying a logical category of data elements and displaying the logical category of data elements (col 5 lines 25-30, col 6 lines 33-35). Clark does not specifically disclose cross-reference as claimed. However, Sato discloses the cross –references (Sato, col 4 lines 51-55, col 5 lines 39-43, col 7 lines 55-62 and col 8 lines 25-30). The modification would

be obvious because one of the ordinary skill in the art would be motivated to increase the range of the applicability of the application.

(10) Van Dyke does not disclose reordering nodes in a program slice diagram.

However, Van discloses to rearrange the program slice diagram (Van, col 5 lines 5-10). The modification would be obvious because one of the ordinary skill in the art would be motivated to improve the execution speed.

(11) The limitation of claim 78 is not similar like claim 11.

Response:

(11) The previous office action mentioned that the limitation of claim 78 is similar like claim 11, which was a typographical error. For the limitation in claim 78, “displays the directed graph in upside-down tree layout” is similar like the claim 10.

Clark discloses displays the directed graph layout (Clark, col 6 lines 33-45). For the limitation, upside-down tree layout, see the rejection of claim 10 in the previous office action.

(12) The applicant has attempted to challenge the Examiner’s taking of Official Notice regarding “*domain-specific*’.

Response:

(12) The official notice, presented in the last office action, concerning “domain-specific” is maintained. Kawabe et al (US Patent No 6,041,177) is cited herein as evidence to support examiner’s taking of official notice (Kawabe, col 5, lines 37-59, lines 55-60). The modification would be obvious because one of the ordinary skill in the art would be motivated analyze the program very efficiently because it’s cost effective, it takes less time to analyze and very easy to maintain.

*Conclusion*

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. The prior art made or record and not relied upon is considered pertinent to applicant's disclosure.

TITLE: Using program call graphs to determine the maximum fixed point solution of interprocedural bidirectional data flow problems in a compiler, US 5485616 A

TITLE: Aggregate structure identification and its application to program analysis, US 6279149 B1

TITLE: Method and system for data mining automation in domain-specific analytic applications, US 6799181 B2

TITLE: Method and system for creating and validating low level description of electronic design, US 6324678 B1.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chameli Das whose telephone number is 571-272-3696

The examiner can normally be reached on Monday-Friday from 7:00 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor Tuan Dam can be reached at 571-272-3695. The fax number for this group is (703) 872-9306.

An inquiry of general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is 703-305-9600.

*Chameli C. Das*  
**CHAMELI C. DAS**  
**PRIMARY EXAMINER** 1/5/05